

What is claimed is:

1. A spectrophotometer system, comprising:

a probe tip including one or more light sources and a plurality of light receivers;

a first spectrometer system receiving light from a first set of the plurality of light

5 receivers;

a second spectrometer system receiving light from a second set of the plurality of light receivers;

a processor, wherein the processor receives data generated by the first spectrometer system and the second spectrometer system, wherein an optical measurement of a sample
10 under test is produced based on the data generated by the first and second spectrometer systems.

2. A method for determining a value of a shade guide system that is a closest match to the shade of an object, comprising the steps of:

measuring the optical properties of the object with an instrument;

15 calculating a plurality of color parameters based on the measurement;

calculating a table of hits based on whether the color parameters satisfy predetermined conditions;

determining whether one or more shades in the table of hits satisfies all corresponding “must match” conditions;

20 if no shades satisfy all corresponding “must match” conditions then reporting a failure; and

if multiple shades satisfy all corresponding “must match” conditions then assessing additional conditions to determine a best match shade.

3. A method for determining optical characteristics of an object, comprising the
25 steps of:

measuring optical characteristics of the object with an instrument;

determining a closest match to predetermined shade values in a plurality of shade guide systems;

30 concurrently displaying the closest determined match in the plurality of shade guide systems; and

displaying an indication of which of the concurrently displayed closest determined match in the plurality of shade guide systems is a best match.

4. A method for determining visual acceptance of a restoration, comprising the steps of:

storing data indicative of color characteristics of a plurality of shade guide values;

measuring optical characteristics of an object to which the restoration is to be a visual

5 shade match;

determining a prescribed shade guide value for the restoration based on the measuring optical characteristics;

fabricating the restoration based on the prescribed shade guide value, wherein constituent materials for the restoration are determined based on the prescribed shade guide

10 values;

entering or accessing the determined prescribed shade guide value for the restoration;

measuring optical characteristics of the restoration; and

providing a predictive indicator of the visual acceptability of the restoration as compared to the object based on the entered or accessed, determined prescribed shade guide

15 value and data from the measurement of the optical characteristics of the restoration.